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Annual Report of the American Museum of Natural History, Central Park, N. Y. Feb. 15, 1882.

A sketch of the progress of American mineralogy, an address delivered before the Amer. Assoc. for the Adv. of Science, at Montreal, Aug. 25, 1882, by Professor Geo. J. Brush, president. Salem. From the author.

On the Cranium of a new species of *Hyperodon* from the Australian seas. By W. H. Flower. From the Proc. Zool. Soc. of London, May, 1882. From the author.

An die Mitarbeiter und Freunde des "Kosmos." By Professor Dr. B. Vetter. A notice of the transference of the editorship of the above magazine from Dr. E. Krause to the author.

Humboldt Library No. 38. Geological Sketches. By Archibald Geikie. Part 1.

Kant. By William Wallace, M. A. Philadelphia, J. B. Lippincott & Co. From the publisher.

Nature Series. Charles Darwin. London, Macmillan & Co., 1882. Contains notices of his life and character, work in zoölogy and work in psychology, by G. J. Romanes; his work in botany, by W. T. Thiselton Dyer; his work in geology, by A. Geikie, and an introductory notice by T. H. Huxley. All reprints from "Nature." From the publisher.

The Scientific Roll and Magazine of Systematized Notes. Climate. Vol. I, Part 2. Aqueous vapor. Conducted by Alex. Ramsay, F.G.S. London. From the publisher.

Some Observations on ostriches and ostrich farming.

Sur les constructions turriformes des Vers de terre de France. Par M. E. L. Trouessart. Paris. From the author.

Description Lithologique des Récifs de St. Paul. Par A. Renard. Bruxelles. Ext. des Ann. de la Soc. belge de Microscopie. From the author.

Les Roches Grenatifères et Amphiboliques de la Région de Bastogne. Par A. Renard. Ext. du Bulletin du Mus. Roy. d'Hist. Nat. de Belgique. From the author.

Notes on the Bartram oak (*Quercus heterophylla* Michx.). By Isaac C. Martindale. From the author.

Compte-Rendu des Seances de la Commission Internationale de Nomenclature Géologique et du Comité de la Carte Géologique de l'Europe, tenues a Foix (France), Sept., 1882.

Dr. H. H. G. Bronn's Klassen und Ordnungen des Thierreichs. Sechster band, III Abtheilung. Reptilien. Leipzig und Heidelberg. From the publisher.

Catalogue of Mammalia in the Indian Museum, Calcutta. By John Anderson, M.D. Part I. Primates, Prosimiæ, Chiroptera and Insectivora. Calcutta. Printed by the trustees of the Indian Museum.

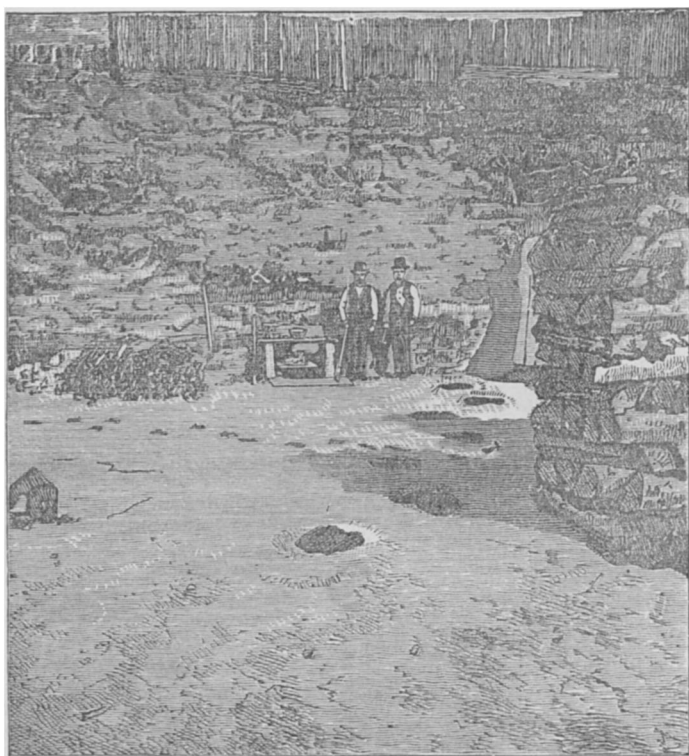
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## GENERAL NOTES.

### GEOLOGY AND PALÆONTOLOGY.

ON *UINTATHERIUM* AND *BATHMODON*.—At a recent meeting of the Philadelphia Academy, Professor Cope exhibited a mandible of *Uintatherium robustum* of Leidy, which includes the symphysis. This region supports but two teeth, probably incisors on each side, which distinguishes the genus from *Bathyopsis* Cope, where there are four on each side. Its structure in this point had been previously unknown. He then exhibited some bones of *Bathmodon*, and showed that the genus differs from *Coryphodon* in the articulation of the astragalus. This element has a facet on its internal side not found in *Coryphodon*. It may be an articular face for a produced entocuneiform, or for a distinct bone or spine. The specimens exhibited represent the *Bathmodon radians* and a new and much larger species, to which the name of *Bathmodon pachypus* was given.

**THE NEVADA BIPED TRACKS.**—It is probable that the contemporaneity of man with the horse and other extinct Pliocene mammals in Western North America will soon be satisfactorily demonstrated. The first evidence on the subject was furnished by J. D. Whitney, chief of the Geological Survey of California, in the case of the Calaveras skull, which was said to be taken from the gold-bearing gravel; and in several other cases subsequently added. From the fact that scientific observers were never present at the unearthing of the remains of man and his



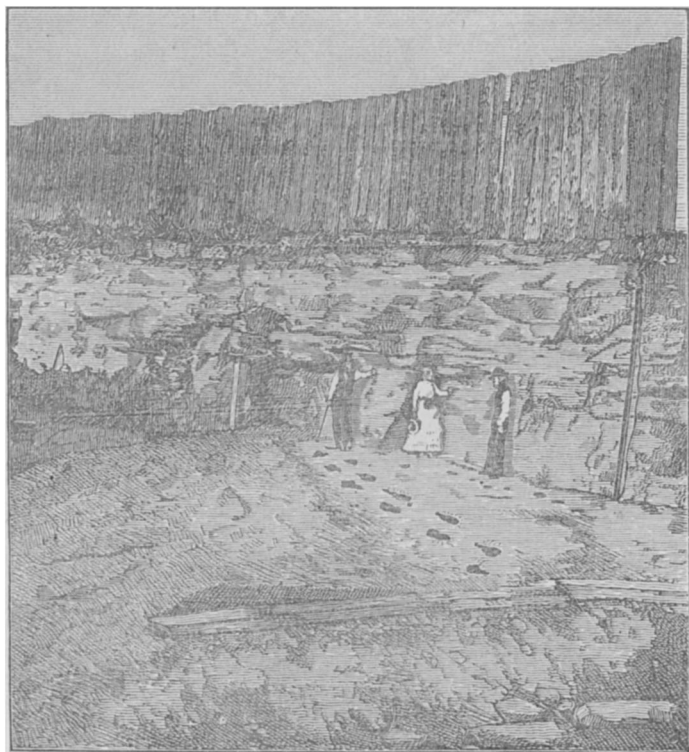
The Carson Mammoth Tracks.

works from this formation, the evidence has been generally regarded as inconclusive. The gold-bearing gravel of California is, however, a very peculiar formation, and an object once buried in it, would carry such marks of its origin as to be quite recognizable. This was the case with the Calaveras skull when first discovered, as I am informed by Professor Verrill of Yale College. This gentleman states that the skull was partially filled and covered with the hard, adhesive "cement" so characteristic of the formation.

I here refer to two observations of my own made in 1879, in

Oregon<sup>1</sup> and California,<sup>2</sup> which were confirmatory of the existence of man in the Upper Pliocene of both those States, but the evidence is in neither case absolutely conclusive.

The discovery that the tracks of several species of Pliocene Mammalia<sup>3</sup> in the argillaceous sandstones of the quarry of the Nevada State Prison at Carson, are accompanied by those of a biped resembling man, is a further confirmation of these views. The tracks are clearly those of a biped, and are not those of a member of the Simiidæ, but must be referred to the Hominidæ. Whether they belong to a species of the genus *Homo* or not,



The Carson Footprints.

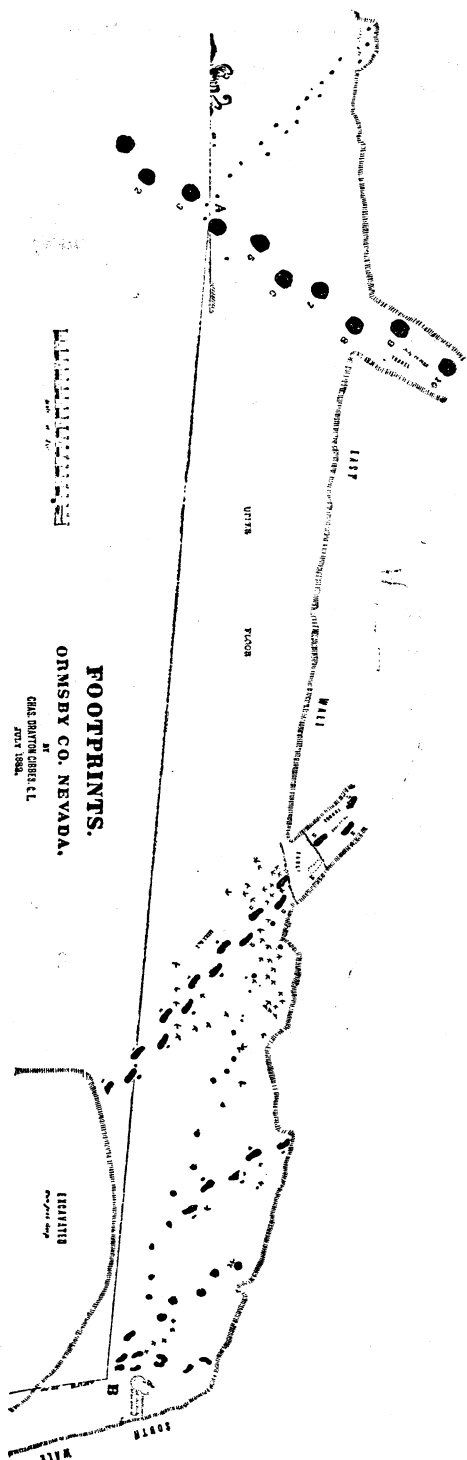
cannot be ascertained from the tracks alone, but can be determined on the discovery of the bones and teeth. In any case the animal was probably the ancestor of existing man, and was a contemporary of the *Elephas primigenius* and a species of *Equus*.

We give two cuts of these tracks, extracted from a paper read by Dr. Harkness of San Francisco, before the California Academy of Sciences.—*E. D. Cope*.

<sup>1</sup> AMERICAN NATURALIST, 1878, p. 125.

<sup>2</sup> Loc. cit., 1880, p. 62.

<sup>3</sup> Loc. cit., 1882, pp. 195 and 921.



THE GEOLOGY OF CHESTER COUNTY, PENNSYLVANIA.—Some points in the geology of this region of considerable complexity have been recently worked out by Dr. Persifor Frazer, of the State Geological survey. The results are published in his *These Première* presented to the University of France, 1882. The structure of the limestone valley of Chester has long been under discussion. The northern hill is composed of sandstone and quartzite, the bottom of the valley of limestone, and the south hill of hydromica and chlorite schists and slates. The first two formations are the primordial and auroral, Nos. 1 and 2 of Rogers, or the Potsdam and Calciferous of Hall. The dip of these beds is south-east, and there is no reversed dip and no synclinal. Professor Fraser believes that a fault extends along the northern base of the south hill for forty miles, and that the oldest beds have been thrust up to form the south hill. The schists then are older than the Potsdam beds. Their dip is like the latter, south-east. South of this hill the schists descend and are succeeded by another limestone, which is in place between the former and the Potsdam beds. This formation is then considerably older than the limestone of the valley. Fraser calls it the Doe-run limestone. This is succeeded by the Potsdam again, and it in turn by the valley limestone, as in the valley itself. This latter bed appears in the region of Avondale and London Grove.

KOWALEVSKY ON ELASMOTHERIUM.—Dr. W. Kowalevsky has recently studied perfect crania of the *Elasmotherium typus* from the pliocene of the Volga. He shows that it is one of the *Rhinocerotidae*, and that the genus differs from the others of the family in a most interesting way. It is related to them as the higher genera of the Equidae are to the lower, and the higher genera of Bovidae are to the lower, in three points—first, the molars are prismatic; second, their valleys are filled with cement; third, there are no incisor teeth. In the crimping of the enamel we have a species character of specialization. There is an osseous enlargement of the frontal bone, something like that of the giraffe, but much larger. The nasal bones are weak, and did not support a horn. It is proven that *Stereocerus* Duv. is identical with *Elasmotherium*. The genus stands at the top of the family, next to *Cœlodonta*. The *E. typus* was as large as the Indian rhinoceros. —*E. D. Cope*.

TWO NEW GENERA OF PYTHONOMORPHA.—M. L. Dollo, in the *Bull. du Mus. Roy. d'Hist. Nat. de Belgique*, describes the Mosasaurian remains in the Museum of Brussels. He forms from characters of the premaxillary and palatal regions, the new genus *Pterycollasaurus* to receive *Mosasaurus maximiliani* Goldfuss. He also proposes the genus *Plioplatecarpus* for the reception of a Mosasaurian resembling a *Liodon*, but which in the structure of its coracoid and maxillary teeth differs widely from that genus,

approaching more nearly to *Platecarpus*, Cope. The species, the remains of which were found near Maestricht, is named *P. marshii*. Mr. Dollo thinks that this animal possesses a sacrum of two vertebrae. It has also sclerotic bones. The genera of this order or sub-order are, then, eight in number, viz.: *Baptosaurus* Marsh; *Pterycollosaurus* Dollo; *Mosasaurus* Conyb.; *Platecarpus* Cope (*Lestosaurus* Marsh); *Plioplatecarpus* Dollo; *Liodon* Owen (*Rhinosaurus* and *Tylosaurus* Marsh); *Sironectes* Cope (*Holosaurus* Marsh); *Clidastes* Cope (*Edestosaurus* Marsh).—*E. D. Cope*.

SCUDDER ON TRIASSIC INSECTS.—At a late meeting of the National Academy of Sciences, Mr. S. H. Scudder announced the discovery of insects in the red beds near Fairplay, Colorado, which included a number of species of blattiform *Orthoptera*. These indicate mesozoic age of the rocks, and as they are below undoubted jurassic beds, Mr. Scudder refers them to the trias. It is, however a fact, that the numerous vegetable remains indicate, according to Mr. Lesquereux, to whom they have been submitted, a Permian age for the formation. The species are all either European, or identical with those from the permian of West Virginia. Here, again, the evidence from paleobotany is not coincident with that from paleozoölogy. In the well-known case of the tertiary and Laramie formations, the plants indicate a later date than the vertebrata. In the present case they indicate an earlier age than the insects.—*E. D. Cope*.

SOME TERTIARY NEUROPTERA OF FLORISSANT, COLORADO.—Mr. S. H. Scudder<sup>1</sup> states that the Florissant strata, which are by Lesquereux and Cope placed immediately above the Green River shales, have yielded seven genera and twelve species of Planipennian Neuroptera, including five Raphidiidæ, four Chrysopidæ, one Hemerobiid, and one Panorpid.

The number of tertiary Planipennia known is already nearly doubled by the discoveries made in the American tertiaries. The Florissant beds have furnished six species of Odonata besides two larvæ. Two of these, and one larval form, belong to *Æschna*, the rest are Agrionina. The four species from the Green River shales are all Agriones. The resemblance of the faunas of the two localities is very apparent, though the species and even the genera are wholly distinct. The facies of both is decidedly sub-tropical.

GEOLOGICAL NOTES.—Recent numbers of the Annals and Magazine of Natural History contain the following articles: Notes on the Trochamminæ of the Lower Malm of Aargau (Switzerland), by Dr. R. Hæusler; Notes on fossil Calcispongiæ, by G. J. Hinde. This paper is devoted especially to those sponges which have been grouped by Professor Zittel in the family of "Pharetones,"

<sup>1</sup> Proc. Bost. Soc. Nat. Hist., Vol. XXI, p. 407, 1882.

and embodies some fresh facts regarding their spicular structure, as well as descriptions of five new species. From the close similarity between the minute spicular characters of these species and those of existing Calcisponges, the writer believes that the originally calcareous composition of the fossil forms can no longer be disputed. He also believes that the majority of the Pharetones possessed a "dermal layer of quadriradiate (?) spicules." The affinities of *Palæocampa*, Meek and Worthen, as evidence of wide diversity of type in the earliest known Myriopods, by S. H. Scudder.—In the October number of the Geological Magazine H. H. Howorth continues his argument in favor of the occurrence of a great Post glacial flood by examining the evidence of the Angular drift which overlies much of the land on either side of the English channel. The unrolled surface of these stones, the presence among them of land-shells and quadrupedal bones, the want of stratification, and the lack of marine beaches and of marine organisms throughout this layer, are to the author eloquent evidence of their deposition by a sudden and violent flood. The absence of river shells, and the lack, throughout the section of the English channel, of any smooth trough such as a river would form, are against the fluvial origin of this drift, as is also the character of the drift itself, so widely different from the fine mud of the deltas. Mr. Howorth promises a farther argument, but hints that the flood he postulates is not a universal or Noachian deluge; H. Woodward has a note on *Ellipsocaris dewalquei*, a new Phyllopod crustacean shield from the Upper Devonian of Belgium; N. Flight continues his history of meteorites; T. F. Jamieson continues his enquiry into the causes of the depression and re-elevation of the land during the Glacial period; and J. S. Gardner gives suggestions for a revised classification of the British Eocenes. Mr. Gardner believes that the separation of a part of the series as Oligocene is artificial as regards England. The Oligocene strata of England are the Fluvio-marine series of the Isle of Wight.—The United States Geological Survey is prosecuting work in the old States as well as in the Territories of the West. Three parties are now surveying in the Southern Appalachians. Many of the employés are local geologists.

#### MINERALOGY.<sup>1</sup>

THE MECHANICAL SEPARATION OF MINERALS.—Mechanical methods for separating the minerals composing a rock are of great value in lithological investigations, and, where possible, should be employed in advance of chemical analyses. The best method is the now well-known one of using a liquid of great density, such as a solution of mercuric iodide, in which the pul-

<sup>1</sup> Edited by Professor H. CARVILL LEWIS, Academy of Natural Sciences, Philadelphia, to whom communications, papers for review, etc., should be sent.